

REMARKS

This is in response to the Official Action dated June 2, 2009. Applicant notes with appreciation the Examiner's careful review of the pending application.

The Obviousness Rejections

The Examiner rejected claims 1-13 under 35 U.S.C. §103(a) as being unpatentable over Korean Application No. 20-2003-00221484 to Lee ("Lee") in view of U.S. Patent No. 3,779,383 to Ayres ("Ayres"), either alone or in combination with U.S. Patent No. 5,549,816 to Harp, U.S. Patent No. 3,799,342 to Greenspan. Specifically, the Examiner argues that independent claim 1 is obvious in view of Lee and Ayres.

Amended Independent Claim 1 is Patentable

Independent claim 1 has now been amended to recite a syringe piston having, among other things, a piston body defining a hole for receiving a closing screw. Additionally, independent claim 1 has been amended to recite elements previously set forth in cancelled claims 2 and 3, notably a weight in the form of a metal ring coupled to the rear side of the piston body which encircles the opening and closing device. Applicant respectfully submits that amended claim 1 is not obvious in light of Lee and Ayres because the cited references do not teach or suggest the limitations within amended claim 1. Further, Applicant respectfully submits that Lee teaches away from the use of a centrifugal separator (Translation p. 3, lines 50-51) and that reliance upon Lee as a primary reference for the obviousness rejection is improper.

Lee Suggests and Teaches the Omission of Centrifugation

In the instant invention, a mixture of blood, bodily fluids, and fat components are separated when the cylindrical vessel is inserted into a centrifugal separator and density gradient centrifugal separation is performed (Paragraph 56). In contrast, Lee omits the centrifugation process and substitutes a screw (70) which advances the piston head (40)

the length of the vessel. In fact, one of the stated goals (i.e., “Technical Challenges”) of Lee is to omit or render unnecessary the centrifugation process generally utilized during fat transplantation (Translation p. 3, lines 50-51; Figs. 1-3). Thus, Applicant respectfully submits Lee is an improper reference and the Examiner’s rejection of independent claim 1 in reliance thereon is improper.

Lee’s Screw is Not Housed Entirely within Piston Body and Vessel

Lee discloses a screw (70) functioning as a plunger that extends the length of the vessel or container (see Fig. 3). Lee’s screw does not and is incapable of functioning under pneumatic suctioning and discharging of fat. Moreover, Lee’s screw is incapable of remaining within the vessel and piston head and functioning during centrifugation while also serving to open the discharge hole.

Lee and Ayres Combined Will Not Function

Notwithstanding the inapplicability of Lee, Applicant respectfully submits that amended claim 1 is not obvious in light of Lee and Ayres because the cited references do not teach or suggest every limitation within amended claim 1. Obviousness requires at least a suggestion of all of the limitations in a claim. Applicant submits that Lee and Ayres do not suggest a closing screw and piston structure as appearing in Applicant’s syringe piston and set forth in amended independent claim 1. Specifically Lee and Ayres fail to suggest a screw for opening and closing a hole, wherein the screw is housed entirely within the piston body and vessel.

Lee discloses a screw (70) functioning as a plunger that extends the length of the vessel or container (see Fig. 3). A combination of Lee and Ayres would result in a vessel containing a piston that defines an opening, wherein the opening would be opened and closed by a plunger that extends out one end of the vessel. Such a structure would not operate under pneumatic forces to seal the opening during suctioning and discharge fat. Moreover, such a combination would be incapable of undergoing centrifugation procedures of the type claimed in the present invention. Such a combination would

operate in one mode—i.e., the suctioning and discharge of fluids under manual pressure caused by the rotation of the plunger screw 70.

In contrast, Applicant's closing screw (44), weight (60) and piston is capable of operating in a variety of modes or configurations. In one configuration for suctioning fat, Applicant's closing screw (44) may be tightened within the screw hole (41) which is disposed within the piston body (Para. 49 and 54; Fig. 2). The closing screw is housed entirely within the piston body and vessel. When the closing screw is tightened within the piston body, the free oil discharging hole (30) is closed thereby permitting positive pressure from a pneumatic unit (120) to push the syringe piston to the front of the vessel, and then permitting negative pressure from the pneumatic unit to extract fat from patient via the cannular (100) (see Fig. 5a).

In another configuration for separating fat, the closing screw (44) is released to open the free oil discharging hole (30) such that density gradient centrifugation permits the weight (60) to move the syringe piston forward to press and filter the fat thereby discharging the free oil (see Fig. 5b and 5c).

In yet another configuration for fat transplantation, the closing screw is tightened, the cannular is inserted into a patient, and positive pressure from the pneumatic unit injects fat into the patient (see Fig. 5c).

Applicant submits that the combination of Lee and Ayres is incapable of functioning during suctioning, discharging and centrifugation operations, wherein the closing screw is housed entirely within the piston body and vessel as set forth in amended claim 1.

As the foregoing illustrates, the limitations of Applicant's closing screw in combination with the discharge hole permits three modes of operation not suggested by Ayres or Lee. In fact, Lee teaches away from the use of a centrifugation process specifically stating that omission of the process of centrifugation is a technical goal

sought to be addressed. Accordingly, Applicant submits that amended independent claim 1 is not obvious in light of Ayres or Lee.

The Combination of Applicant's Closing Screw, Hole, and Weight Are Novel

The combination of a discharge hole, a closing screw housed within the piston body, and a weight are not disclosed in the prior art. The reason of combining these elements is to arrive at a device that operates under pneumatic and centrifugal forces. The closing of the screw permits operation under pneumatic forces (i.e., suctioning and discharging fat). The opening of the screw that remains within the vessel permits operation under centrifugal force whereby the weight serves to press fluid within the vessel and permit a desired fluid to flow through the discharge hole.

The combination of the weight and closing screw increases the weight applied thereto. For example, a weight of 30 grams undergoing a centrifugal force of 4,000 grams results in a total weight of 120 kilograms acting against the piston body and fluid. As total weight increases, the volume of the weight must be increased as much as the increased total weight, and as a result, the effective volume of a syringe is reduced. Thus a 10 gram copper weight in a 10 cc syringe causes a volume loss of 2 cc. Consequently, the weight should fill an empty space between the conventional essential elements (e.g., vessel body and packing). In order to design the simplest and heaviest weight, the weight may be disposed in the vessel having a large outer diameter with a closing and opening valve (in this case a screw) disposed at the center. Moreover, the empty space is generally formed behind a filter, and thus such a weight defining a hole must be disposed at a rear portion of the piston.

Such a shape enables the weight itself to function as a path for oil, so that the design of other parts of the piston may be simplified, and the size and weight of the weight may be diversified.

Secondary Considerations

Applicant submits for the Examiner's consideration a copy of the notice issued by the Federal Drug Administration (FDA) approving Applicant's device for use in the US.

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CONCLUSION

Based on foregoing amendments and arguments, Applicant submits that pending claim 1 and claims 4-13 which properly depend from claim 1 are now in immediate condition for allowance, and the same is respectfully requested. Applicant is paying for a one-month extension (\$65.00) by credit card. The Examiner is hereby authorized to charge any additional fees (or credit any overpayment) to Deposit Account No. 50-0332.

Respectfully submitted,

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